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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

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In the Matter of) MM Docket No. 99-25
Creation of a Low) RM-9208
Power Radio Service) RM-9242
To: The Commission

COMMENTS OF GREATER MEDIA, INC.

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SUMMARY

Greater Media, Inc. ("Greater Media") files these comments in opposition to the Commission's Notice of Proposed Rule Making ("Notice") proposing to create a new low power FM ("LPFM") service.

The Commission's proposal would have disastrous consequences for the current allocation scheme and existing FM service, creating massive new areas of interference in all areas throughout the FM band, substantially degrading the quality of current service and jeopardizing the development of In Band On Channel Digital Audio Broadcast Service which is critical to the radio broadcast medium's move into the digital age. The NAB's exhaustive study filed this date demonstrates that, in addition to oceans of interference within stations' protected service contours which would be created by LPFM, the current receiver universe is in no way equipped to handle the influx of new stations which would be allowed by adoption of the Commission's proposal.

Moreover, while the stated goals of an LPFM service--diversity and new economic opportunities--are laudable, the reality is that neither of these goals will be realized with LPFM. The Commission's own studies show that few, if any, viable LPFM facilities could be created in larger markets, even with the elimination of second and third adjacent channel protection requirements. On the other hand, the proposal would allow numerous facilities in smaller, rural markets which, as the history of Docket 80-90 demonstrates, do not have the resources to sustain them.

TABLE OF CONTENTS

Summary	i
I. Introduction	1
II. The Technical Issues	3
A. Spectrum Use	3
B. Receivers	8
C. IBOC DAB	11
III. Economic Issues	13
IV. Conclusion	17

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To: The Commission

Greater Media, Inc. ("Greater Media"), through its attorneys and pursuant to Section 1.415 of the rules, hereby files its comments in response to the Commission's Notice of Proposed Rule Making ("Notice") in the above-referenced docket inviting comment on its proposal to create a new low power FM ("LPFM") service. In support thereof, the following is shown:

1. Greater Media has been a broadcast licensee for over thirty years, operating both AM and FM stations in communities large and small in many areas of the United States. Today Greater Media, individually or through various subsidiaries, is the licensee of stations in markets throughout the country, including Boston, Massachusetts, Philadelphia, Pennsylvania, Detroit, Michigan and New Brunswick, New Jersey. As a longtime licensee, Greater Media has participated extensively in Commission proceedings over the years looking toward amendment of the technical rules which are critical to maintaining, to the maximum

possible extent, an interference-free broadcasting environment which maximizes service to the public.

2. Preliminarily, while the stated goals of an LPFM service--diversity of voices and new economic opportunities--may be laudable, the reality is that none of these goals would be realized with the initiation of such a service. At the same time, the Commission's proposal, if implemented in whole or in part, would have disastrous consequences for the current allocation scheme and existing FM service, the primary aural broadcast medium in the United States. Among other things, it would create massive new areas of interference, substantially degrading the quality of current service, and would stymie efforts to implement In Band On Channel Digital Audio Broadcast ("IBOC DAB") service, a key component of radio in the future as the world moves from analog to digital distribution of information. It should also be stressed that, while LPFM presents no realistic economic opportunities for those groups historically limited in their ability to participate in the radio broadcast industry, the authorization of thousands of new radio broadcast facilities in smaller markets would have serious adverse consequences for broadcasters in these markets. Finally, to the extent that the Commission is animated by the desire for new outlets to permit the expression of additional viewpoints, the Internet presents a viable alternative to the wholesale

creation of hundreds, perhaps thousands, of LPFM stations. Moreover, the Petitioners' proposals if adopted would likely provide further encouragement to illegal broadcast operations. Ultimately, eviscerating basic technical rules to create thousands of new low power radio broadcast facilities will not serve the public interest. Greater Media's comments below address these technical and economic issues.

II. The Technical Issues

A.

3. The single most critical responsibility of the Commission and indeed, the reason for its establishment by the Communications Act of 1934, is to insure maintenance of spectrum integrity and adequate, effective protection from interference of authorized radio stations, in any service. The growing chaos of the airwaves in the early part of this century and the resulting inability of the then existing stations to serve their listeners because of dramatically increasing levels of interference, as more and more stations attempted to occupy the same portion of the spectrum, was the genesis of the Federal Radio Commission and ultimately of the Commission.

4. In the AM/FM arena, promoting an interference-free AM and FM environment and maximizing efficient and effective use of spectrum have been cardinal objectives of the Commission's technical rules over the years. The Commission has undertaken

exhaustive proceedings involving AM and FM service rules with a view toward achieving these ends. Notably, in the case of FM proceedings over the past 40 years, the Commission itself has consistently observed that lower power stations provide for very inefficient use of the spectrum. Quite simply, the area in which such stations produce interference, and thus preclude other service and/or interfere with existing service, is massive in comparison with their minuscule areas of interference-free service. It was largely for this reason, for example, that the Commission eliminated Class D 10 watt noncommercial educational stations. To endorse anew the LPFM concept would run counter to the Commission's own carefully drawn conclusions in this area.

5. Based upon exhaustive technical studies, described herein and analyzed in greater detail in the comments filed this date by the National Association of Broadcasters ("NAB"), the establishment of an LPFM service would severely compromise if not destroy the existing FM radio service and return the US broadcast system to the chaos of yesteryear. Such a course would constitute an abdication by the Commission of its primary responsibility to its licensees and to the public.

6. In most of the populated areas of the country the FM spectrum is effectively full as might be expected of a mature radio service that has grown, both in terms of listener acceptance and number of stations, to become the primary aural

medium in the United States. As the Commission discovered in its allotment studies, included as Appendix D to its Notice, there are very few opportunities for new stations of any power level to be added to most radio markets on a noninterference basis. The spectrum has been filled, effectively and efficiently by existing stations operating under the current allocation standards, to the point where it is saturated. By definition, the attempted addition of more stations to a spectrum that is already "full" will result in interference.

7. It must be emphasized that the Commission's own study reached the unsurprising conclusion that little or no new service could be added to most populated areas unless the existing allocation standards, in place and effective for over 40 years, were severely compromised. The Commission's proposal to eliminate second- and/or third-adjacent channel protections may not reasonably be viewed as the mere elimination of antiquated or obsolete technical standards; rather, it must be viewed as an erosion of fundamental technical standards which are necessary to protect FM facilities from destructive interference. To compromise these standards is to destroy the technical underpinnings of the entire FM service. The result of such a compromise would be massive increases in levels of interference to existing stations, with attendant loss of service to many

listeners who have every right to expect continuation of the service they currently enjoy.

8. In some cases, existing service would be "replaced" by an LPFM operation, operating within the formerly protected contours of the original station. The concept of "replacement of service" is largely responsible for the extremely high levels of interference now present in the AM service which severely compromise its ability to provide quality service to the public. It was emphatically rejected in the AM service decades ago, but too late to prevent substantial degradation of the AM service. Notably, most of the Commission's recent "omnibus" proceedings on AM coupled with the initiation of service in the expanded band were focused on trying to reduce interference in the AM service. Much of that interference is attributable to the former "replacement of service" policy. The history of AM radio and the Commission's efforts to revive the service provide a compelling case for rejecting the LPFM proposal.

9. Although the Commission devoted considerable effort in its studies to ascertain how many new LPFM operations could be shoe-horned into existing markets if third and second adjacent channel protection requirements were eliminated, there were no studies to show the potential destructive interference which would be created to existing stations by such a change in allocation standards. In fact, any analysis of the impact of

LPFM on existing service produces disturbing results. Although there are an infinite number of scenarios one could posit, assume a full facility class B operation with a new LP1000 station operating on a second adjacent channel within the periphery of the Class B's protected (54 dBu) contour, as would be permitted under the Commission's proposal. Such an operation would create an interference zone with a diameter of 4.2 km and an area of 13.8 square km. Within this area, service from the class B station would be lost. This in itself is bad enough; however, under the Commission's proposal, any existing station of any class could and would likely have multiple interferers of this same type. They might be located at the edge of coverage, but they could also be located anywhere within the station's service area, potentially resulting in loss of service even within the city grade contour of the facility. This "swiss cheesing" of an existing station's service area clearly contravenes the reasonable expectations of existing licensees and does not serve the public interest in effective interference-free service.¹

¹Beyond this "swiss cheesing" of an existing station's service area, it should be noted that most existing FM stations provide, and the public has come to expect, service beyond the "protected" contours of the station. Although FM is primarily an interference limited service, in those directions where interference is not a factor, reliable service is typically provided well beyond the protected contour. Listeners have come to expect this service; there are certainly no lines drawn at the 60 or 54 dBu contours of stations indicating that reception will suddenly disappear at these points. To pack the FM band with LPFM stations will seriously erode such service, replacing it with tiny islands of inefficient LPFM service while creating oceans of

10. Receiver de-sensing, which is nowhere addressed by the Commission in the Notice, is a very real problem in a significant number of consumer FM receivers. Simply put, the front end of many less expensive FM receivers (boom boxes, walkmen, portable and clock radios and the like) are not sharply tuned. Any strong RF energy encountered by such a front end within roughly plus or minus 2 MHz (receiver dependent) will enter the front end and in turn effect the RF gain via the Automatic Gain Control of that stage. The audible effect on the receiver is to reduce the RF gain and in so doing cause a desired signal on a nearby frequency (up to plus or minus 2 MHz) to weaken or disappear. This phenomena would be expected to occur in the vicinity of any LPFM transmitter site, thus exacerbating the "conventional" interference previously detailed.

B. Receivers

11. An assessment of consumer receiver performance is critical to evaluation of any proposal to reduce existing interference standards. The Notice is silent on this issue.

12. In an effort to quantify typical consumer receiver performance, the NAB at considerable expense has conducted what is likely the most comprehensive study every undertaken in this

interference to existing stations. Whether or not a licensee is entitled to interference protection in these instances, Greater Media submits the public interest is not well served by such a development.

area. In the study, conducted under contract to NAB by the Carl T. Jones Corporation, twenty eight consumer receivers, representing virtually every category of radio from component high fidelity to inexpensive portable, were scrutinized and characterized as to performance in an environment where second and/or third adjacent channel allocation standards were compromised. The results were clear and convincing. No changes can be made to the existing allocation standards without introducing massive and pervasive new interference to the vast majority of existing FM receivers.

13. The Commission is respectfully referred to the NAB's filing in this matter for the details of the complete study. A brief summary of the study's findings is as follows:

- Car radios and home stereos generally perform better than personal, table, portable and clock radios but personal, table, portable and clock radios make up nearly 70% of the existing receiver universe, according to 1998 Consumer Electronics Manufacturing Association (CEMA) market research. Regardless, car radios and home stereos generally do not perform better than expected by the Commission's existing allocation standards, particularly given the wide signal strength variations experienced in the mobile environment. The Commission has postulated that it could relax the allocation standards because receiver technology has improved enough over the years to make the interference issue moot. The results of the study absolutely contradict this assumption.

- The data shows that the existing protection criteria for third adjacent channels is appropriate provided that third adjacent channel interfering stations are outside the desired station's protected service area. More protection is needed to avoid interference if a third adjacent LPFM station is sited

within the full power station's protected contour. Thus the Commission can not eliminate third adjacent channel protection requirements which are essential to protecting stations within their protected service contours in order to accommodate an LPFM service.

- In the case of second adjacent interferers, the situation is more critical. The study shows that the existing second adjacent channel protection requirements for non-reserved band stations does not provide sufficient interference protection.² As is the case with third adjacent channels, more protection is needed as a second adjacent LPFM interferer moves closer to a full power station's transmitter. Thus the Commission can not eliminate the second adjacent channel protection requirements to provide room for LPFM stations if it has any intention of maintaining the current protected service contours of existing FM facilities.

14. The NAB study compels the conclusion that any compromise in existing second or third adjacent channel protection requirements would presage a massive increase in interference to the vast majority of the 710 million radios (CEMA data) in the existing receiver universe.³ Under these circumstances, the Commission may not rationally eliminate fundamental interference protections which have assured a quality FM service which has served the public for many years.

²The more stringent protection requirements for the reserved band stations do appear to be adequate provided the second adjacent channel interfering station is outside of the desired station's protected service area.

³In this regard, any assumption that average receiver performance has somehow been much improved over the years, particularly the ability to better reject increasing levels of interference, is simply not true.

C. IBOC DAB

15. Adoption of the Commission's proposal would jeopardize the on-going efforts to develop IBOC DAB, which represents the next critical step in the technological advancement of the radio medium. For more than eight years, a number of significant entities have expended thousands of hours and tens of millions of dollars seeking to develop IBOC DAB, which would be compatible, both economically and technically, with the existing system of broadcasting in the United States. If successful, this effort will ultimately provide the U.S. with a spectrally efficient digital radio service that will enable the industry to seamlessly transition to the next generation of technology and quality. Among the consumer audio options available to listeners (CD, MD, DTV, digital cable, DVD, etc.), radio is among the last to make the digital transition, a transition it must make both to survive and to provide the American consumer with state of the art radio service.

16. Of necessity, the proponents of IBOC DAB have relied upon existing interference criteria. Moreover, the success of IBOC DAB by its nature is dependent upon existing channel and interference relationships, in large part because extreme care and precision is required to "fit" the additional RF energy which is characteristic of the digital signal into the existing spectrum in order to avoid interference to either the host FM

station or to co-channel and adjacent channel facilities. The addition of many new signals and, worse still, the elimination of second and third adjacent and IF protections would likely doom any hope of implementing an IBOC DAB system.

17. In this connection, Greater Media's Vice President of Radio Engineering currently chairs the DAB subcommittee of the National Radio Systems Committee (NRSC) and has closely followed the development of digital radio since its earliest days. Much of the initial development work on the IBOC DAB systems is complete or nearly complete. All three proponents intend to conduct laboratory and field tests during the summer and fall months and all three have committed to deliver the results of those tests to the NRSC on December 15, 1999.

18. All proponent systems were designed based on the existing FCC allocation standards. All proponents have expressed their concern as to the possible lessening of those allocation standards and the effect on the performance of their systems. The design of these systems is a formidable challenge. The FM channel is crowded with analog information. To design a digital transmission scheme that can coexist with the host analog, its analog and (ultimately) digital neighbors, all within the thin slices of spectrum which are hospitable to the added digital signals, is fraught with difficulty. The low power levels

possible, given the necessity to avoid interference to the host analog station, only add to the complexity of the solution.

19. Under all of these circumstances, the Commission should be vitally concerned about the potential effect on the performance of these IBOC DAB systems by a lessening of second and/or third adjacent channel protection requirements. These systems are under active development and the impact of such a loosening of allocation standards would likely derail the effort to move radio into the digital age embraced by every other medium.

20. The U.S. IBOC DAB development effort stands at its most critical juncture since the technology was first suggested over eight years ago. Fundamental issues are expected to be resolved within the next six to twelve months. It would be terribly unwise to change the basic rules underlying IBOC DAB system design at this late stage of research and development. IBOC DAB is the logical and preferred migration path for U.S. radio transition to a digital transmission scheme. It should be given every opportunity to succeed and should not be burdened with additional and likely insurmountable technical challenges.

III. Economic Issues

21. As has already been shown by the Commission's own studies and the exhaustive NAB analysis, there will be very few LPFM stations possible in most major population centers since the

FM spectrum is already crowded with existing stations. In the event that an LPFM service were to be authorized, it is obvious that most of the new facilities would be implemented in smaller, rural communities where spectrum availability would be increased once fundamental second and third adjacent channel protections of many years standing are eliminated. It is also true that the existing radio services in these communities, which suffered severe adverse consequences as a result of Docket 80-90, would be similarly impacted by an infusion of even more signals into a static economic base.

22. The reality of smaller market radio which serves the majority of Americans⁴ is that there are only so many advertising dollars to go around. Increasing the number of stations by decreasing existing signal protection results in reduced service and lower revenues. Aside from that effect, increase the number of stations and each station has a smaller piece of the pie from which to derive its livelihood. In a geographically small market, a 1000 watt LP1000 allotment would compete with a conventional 3 or 6 kW class A station. As the experience of Docket 80-90 makes clear, the addition of numerous LPFM stations will require existing local stations to cut back news, public affairs and local programming and other activities which are the key to

⁴Almost two-thirds of the U.S. population lives outside of the Top 50 markets.

"localism", perhaps radio's most significant value to its community. "Local" radio can only provide such desirable program elements if it makes economic sense to do so. Too many stations coupled with too little available revenue unfortunately translates into fewer employees, additional out-of-market syndicated programming and less localism, which is the cornerstone of U.S. broadcast service. As the past proved, this is unhealthy for existing small market radio and the public it serves.⁵

23. Another economic issue attendant to the LPFM proceeding is the naked appropriation of heretofore protected service areas from existing, licensed stations that have in many cases paid millions of dollars for licenses and millions more for facility improvements. These licensees by all rights have a reasonable expectation of retaining their existing coverage. Any loss of coverage (and thus listenership) detracts significantly from the value of their facilities and from their ability to compete effectively in the market place. Loss of service within the core of a station's service area, which inevitably will occur if the

⁵With respect to the diversity issue, Greater Media suggests that the Internet provides a readily accessible medium for the expression of views by any one. Today, one can effectively start an operation over the Internet at will, employing streaming audio and other techniques without any need to obtain a license. Indeed, the Internet seems to be an ideal medium for persons and groups to reach niche audiences which is not dependent upon conventional competitive imperatives.

second and third adjacent protection limits are relaxed, is a particularly invasive form of interference that would be unprecedented in the history of the FM broadcast service.

24. It should be emphasized that, contrary to the claims of LPFM proponents, broadcasters such as Greater Media do not fear competition from LPFM. As a major market broadcaster, Greater Media's comments herein are not animated by such competitive concerns except to the extent that any revision of basic technical rules would eviscerate the protected service area of Greater Media's facilities. As an experienced broadcaster, Greater Media is well aware that LPFM presents no realistic economic opportunity for would be entrepreneurs to compete with full power operations in large markets. On the other hand, Greater Media and other broadcasters do fear interference, the loss of existing service and the potential for uncontrolled proliferation of LPFM stations, both licensed and unlicensed, throughout the country, and the potential concomitant loss of revenue.⁶

⁶Because of the fact that most applicants will likely not ultimately receive a license, there will be a large number of disenfranchised individuals, including former "pirates" who, when confronted with the reality of their situation, may well decide to take to the air regardless. To sort out the legitimate from the illegitimate, or indeed even to locate the illegitimate, given the low power nature of the service and the Commission's limited resources, will be extremely difficult.

IV. Conclusion

25. The Commission above all must be the ultimate protector of spectrum integrity. Through wise and prudent technical regulation, it has facilitated the development of a robust, viable and diverse radio broadcast industry which provides effective and efficient service to the American public.


26. The Commission's Notice proposes no less than the establishment of a new radio service wholly at the expense of an existing service and to the detriment of the listening public. In perhaps the most comprehensive such study ever conducted, the NAB has demonstrated that the existing FM allocation standards are entirely appropriate and that to compromise these standards would cause hundreds of millions of existing radio receivers to suffer significant new interference. In addition to being technically infeasible, the Commission's proposal comes at perhaps the most critical juncture in the advancement of radio technology in the past 40 years as radio moves to the next generation of service. The ability of the FM service to transition to IBOC DAB would likely be foreclosed by the proposed LPFM service. Time is needed to complete the IBOC DAB development effort. Consideration of any modification to the technical underpinnings of the FM service, let alone the Commission's radical proposal, should in any event wait until IBOC DAB testing and analysis is complete.

27. Finally, technical considerations aside, the ability of the LPFM service to foster the dual goals of additional diversity and economic opportunity is an illusion. Realistic opportunities in larger markets are severely limited even with the elimination of fundamental adjacent channel protections and smaller markets do not have the revenue base to sustain numerous facilities created at the expense of existing facilities' protected service areas. Under all of these circumstances, adoption of the Commission's proposal would be unproductive, unwise and unfair.

WHEREFORE, for the foregoing reasons, Greater Media urges the Commission not to adopt, in whole or in part, the proposals contained in its Notice.

Respectfully submitted,

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